

Notice of Allowability

Application No.

10/509,215

Examiner

Jean W. Désir

Applicant(s)

LUFKIN, JOHN KIMBALL

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Pre-Amendment filed on 9/24/04.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In claim 2 line 3, "(e.g., y13)" has been deleted.

In claim 2 line 4, "(e.g., x23)" have been deleted, *both occurrences.*

In claim 2 line 5, "(e.g., x23 < y13 < x13)" has been deleted.

cd
4/30/07

Allowable Subject Matter

Claims 1-15 allowed.

The following is an examiner's statement of reasons for allowance:

A) The prior art does not teach or would not have rendered obvious a method for upconverting (Figs. 1, 4) interlaced video to progressive video with a noise constrained diagonal enhancement, such as claimed in claims 1-10, the method having the steps of: determining (26, 28, 30), for a given output pixel, a vertical average, a left diagonal average, a right diagonal average, a vertical difference, a left diagonal difference and a right diagonal difference; selecting (32, 42) among the vertical average, the left diagonal average and the right diagonal average based on a minimal difference among the

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vertical difference, the left diagonal difference and the right diagonal difference; and constraining (32, 44) the selecting step to the vertical average if the left diagonal difference substantially equals the right diagonal difference.

B) The prior art does not teach or would not have rendered obvious a deinterlacing circuit (Figs. 1, 4) for upconverting interlaced video to progressive video, such as claimed in claims 11-15, having: means for determining (26, 28, 30), for a given output pixel, a vertical average, a left diagonal average, a right diagonal average, a vertical difference, a left diagonal difference and a right diagonal difference; means for selecting (32, 42) among the vertical average, the left diagonal average and the right diagonal average based on a minimal difference among the vertical difference, the left diagonal difference and the right diagonal difference; and means for constraining (32, 44) the selecting step to the vertical average if the minimal difference is ambiguous.

The closest prior art- Rabii (US 5,093,721), Wagner et al (US 6,452,639), Thompson et al (6,515,706) disclosed conventional system for upconverting interlaced video to progressive video- either singularly or in combination, fail to anticipate or render obvious the present invention as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean W. Désir whose telephone number is (571) 272 7344. The examiner can normally be reached on 5/4/9 - First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on (571) 272 7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD
Apr. 30, 07


DAVID OMETZ
SUPERVISORY PATENT EXAMINER